JAPAN

EDICT OF GOVERNMENT

In order to promote public education and public safety, equal justice for all, a better informed citizenry, the rule of law, world trade and world peace, this legal document is hereby made available on a noncommercial basis, as it is the right of all humans to know and speak the laws that govern them.

JIS D 9414 (2008) (English): Bicycles -- Brakes

安 *The citizens of a nation must honor the laws of the land.* 倂

Fukuzawa Yukichi

BLANK PAGE

BLANK PAGE

JIS

JAPANESE
INDUSTRIAL
STANDARD

Translated and Published by
Japanese Standards Association

JIS D 9414 : 2008

(JBPI/JSA)

Bicycles—Brakes

ICS 43.150

Reference number : JIS D 9414 : 2008 (E)

Date of Establishment: 1964-03-01
Date of Revision: 2008-03-20
Date of Public Notice in Official Gazette: 2008-03-21
Investigated by: Japanese Industrial Standards Committee
Standards Board
Technical Committee on Consumer Life Products

JIS D 9414:2008, First English edition published in 2008-10

Translated and published by: Japanese Standards Association
4-1-24, Akasaka, Minato-ku, Tokyo, 107-8440 JAPAN

In the event of any doubts arising as to the contents,
the original JIS is to be the final authority.

Printed in Japan

AT

Contents

Page

Foreword

This translation has been made based on the original Japanese Industrial Standard revised by the Minister of Economy, Trade and Industry through deliberations at the Japanese Industrial Standards Committee as the result of proposal for revision of Japanese Industrial Standard submitted by the Japan Bicycle Promotion Institute (JPBI)/Japanese Standards Association (JSA) with the draft being attached, based on the provision of Article 12 Clause 1 of the Industrial Standardization Law applicable to the case of revision by the provision of Article 14.

Consequently **JIS D 9414**: 1997 is replaced with this Standard.

Attention is drawn to the possibility that some parts of this Standard may conflict with a patent right, application for a patent after opening to the public, utility model right or application for registration of utility model after opening to the public which have technical properties. The relevant Minister and the Japanese Industrial Standards Committee are not responsible for identifying the patent right, application for a patent after opening to the public, utility model right or application for registration of utility model after opening to the public which have the said technical properties.

Bicycles—Brakes

1 Scope

This Japanese Industrial Standard specifies the brake assemblies used for bicycles for general use and for bicycles for young children specified in **JIS D 9111**.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this Standard. The most recent editions of the standards (including amendments) indicated below shall be applied.

JIS A 1481 *Determination of asbestos in building material products*

JIS B 0205-1 *ISO general purpose metric screw threads—Part 1: Basic profile*

JIS B 0205-2 *ISO general purpose metric screw threads—Part 2: General plan*

JIS B 0205-3 *ISO general purpose metric screw threads—Part 3: Selected sizes for screws, bolts and nuts*

JIS B 0205-4 *ISO general purpose metric screw threads—Part 4: Basic dimensions*

JIS B 0209-1 *ISO general purpose metric screw threads—Tolerances—Part 1: Principles and basic data*

JIS B 0209-2 *ISO general purpose metric screw threads—Tolerances—Part 2: Limits of sizes for general purpose external and internal screw threads—Medium quality*

JIS B 0209-3 *ISO general purpose metric screw threads—Tolerances—Part 3: Deviations for constructional screw threads*

JIS B 0225 *Cycle threads*

JIS D 0202 *General rules of coating films for automobile parts*

JIS D 9111 *Cycles—Classification and essential characteristics*

JIS D 9301 *Bicycles for general use*

JIS D 9302 *Bicycles for young children*

JIS D 9412 *Handlebars for bicycles*

JIS D 9418 *Bicycles—Free wheels and hub cogs*

JIS H 8610 *Electroplated coatings of zinc on iron or steel*

JIS H 8617 *Electroplated coatings of nickel and chromium*

3 Shape and dimensions

Examples of shape and dimensions of brake-assemblies are shown in figures 5 to 9. The dimensions without indication of tolerances are recommended dimensions. The screw threads other than those according to **JIS B 0225** shall be in accordance with the specifications of **JIS B 0205-1** to **JIS B 0205-4**. The limit dimensions and tolerances shall be 6H/6g of more of the tolerance zone class specified in **JIS B 0209-1** to **JIS B 0209-3**.

The screw threads specified in Annex A to **JIS D 9418** may be used for the attachment of brake drum of band brake, that of internal expanding brake and the disc of disc brake to the hub, upon agreement between the parties concerned with delivery.

4 Constitution and classification

4.1 Constitution

Brake assemblies shall consist of a brake, a brake lever and an operating-force transmission, and each of these components shall be classified as follows. The brake assembled with brake-lever combined handlebars specified in **JIS D 9412** shall be constituted without brake lever.

4.2 Classification of brakes

Brakes shall be classified as given in table 1, according to functional mechanism.

Table 1 Classification of brakes

Classification of brakes	Functional mechanism	Figure of reference (informative)
Pull-up rim brake	Working on rim part	Figure 5
Caliper brake (side-pull type, centre-pull type, cantilever type, cantilever V type)		Figure 6
Band brake	Working on hub part [a)]	Figure 7
Internal expanding brake		Figure 8
Disc brake		Figure 9
Note [a)] The brake hub and coaster brake hub which are the composite bicycle parts having both the function of braking device and that of running device in a hub mechanism are to be in accordance with the specification of **JIS D 9419**, and are not subjected to this Standard.		

4.3 Classification of brake levers

Brake levers shall be classified into the touring brake lever, drop handlebar brake lever (including extension brake lever), guidonnet brake lever and inverted brake lever (see figure 10).

4.4 Classification of operation-force transmissions

Operation-force transmission shall be classified by construction into rod system, cable system and hydraulic system.

5 Names of parts

Names of parts of brake assemblies and examples of materials mainly used are shown in figures 5 to 11.

6 Construction

The construction of brake assemblies shall be as follows.

a) Each assembly and connection shall be correct and be functionally actuated.

b) The brake assemblies shall be capable of adjustment to maintain the braking performance providing for wearing of brake blocks or elongation of brake cables or the like.

c) Suitable friction materials shall be used for the brake blocks, linings and pads.

Brake materials that contain asbestos shall not be used. The asbestos content shall be determined according to clause **7** of **JIS A 1481**.

d) The cable fixing structure shall be such that no cable strand is fractured when fastened with the screws by the manufacturer's recommended tightening torque.

e) Attachment fasteners of caliper brake to frame or front fork shall be provided with locking devices (spring washer, lock nut and the like).

f) The brake assembly using hydraulic system of operation-force transmission shall be free from any oil leakage.

g) Brake lever fitting shall be capable of securely fixing the brake lever to handlebars.

7 Performance

The performance of brake assembly shall be as follows.

a) The brakes working on rim part, when assembled with bicycle, shall comply with the specification of braking performance of **5.2.5** in **JIS D 9301** or **5.2.5** in **JIS D 9302**. The brakes working on hub part, when tested in accordance with **9.1**, shall comply with the static braking torque values in driving relative to the test forces F of table 2.

Table 2 Static braking torque value

Diameter of drum or disc mm	Test force F N	Static braking torque of brake N · m
80 max.	150	35 min.
Over 80 up to and incl. 95	200	40 min.
Over 95		50 min.
For the disc brake, 40 N · m or over of static braking torque to 200 N of test force shall be applied.		

b) The run-out of each part of brake working on hub part, when tested in accordance with **9.2**, shall satisfy the requirements in table 3.

Table 3 Run-out

Unit: mm

Run-out of each part of brake	Run-out
Vertical run-out (total run-out in radial direction) at periphery of drum of band brake	0.4 max.
Vertical run-out (total run-out in radial direction) at inner wall of drum of internal expanding brake	
Lateral run-out (circumferential run-out in axial direction) at 5 mm inside the edge of disc brake	0.8 max.

8 Strength

The strength of brake assemblies shall be as follows.

a) For the pull-up rim brake of rod system, the tensile breakage resistance of connections of front and rear brake tubes with top joints, bottom swivel joint, bottom end lug, etc. shall be not less than 2 000 N.

b) When the plunger rods and bottom rod are assembled into top joints on from and rear brake tubes as well as rod coupling, and a pulling force of 1 000 N is applied, there shall be no slipping at every connecting part.

c) Breakage resistance of the inner cable and the joint of end nipple shall be not less than 1 500 N when the cable is pulled while holding the nipple.

d) When the inner cable is fastened by the manufacturer's recommended tightening torque, and pulled by a force of 1 000 N, there shall be no slipping of cable at the connecting part.

e) Brake wires shall be, when tested in accordance with **9.3**, free from dislocation of nipple end or fracture of inner cable.

f) For the brake retention strength in block holder of caliper brake and pull-up rim brake, a test in accordance with **9.4** shall be performed, and the brake block shall not run off from the block holder nor be cracked.

g) For the caliper brakes other than cantilever brake, when they are tested according to **9.5**, there shall be no cracks, fractures or visible deformations of the brake arms, mounting bolt, etc.

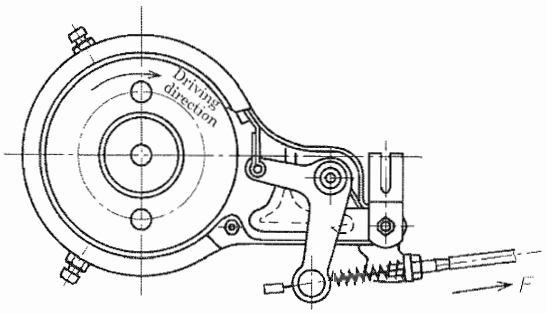
h) When band brake shoe is held by both ends with pins, and pulled by a force of 5 000 N in the case of those used for bicycle for general use, of 3 500 N for bicycles for young children, for 2 min, there shall be no fractures or visible deformation in the brake shoe ends.

9 Tests

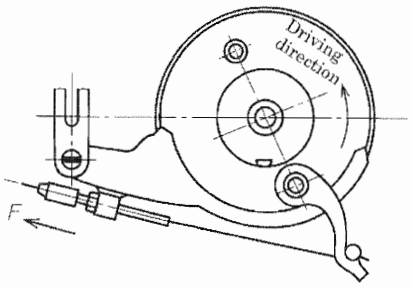
9.1 Static braking torque test

As shown in figure 1, the braking torque shall be measured with the inner cable pulled with the test force F specified in table 2.

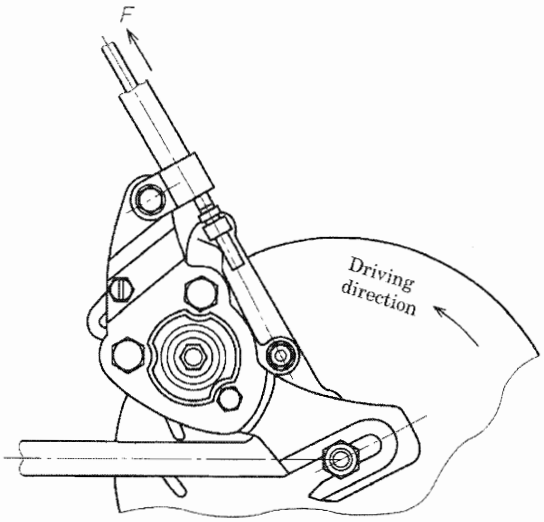
The tests shall be conducted after 5 times running of sliding parts. For the brake assembly using hydraulic system of operation-force transmission, 1/2 of the test force given in table 2 shall be applied at 25 mm from the end of brake lever.



a) **Band brake**



b) **Internal expanding brake**



c) **Disc brake**

Figure 1 Static braking torque test

9.2 Measurement of run-out of brakes

For a band brake or an internal expanding brake, the drum shall be fixed on the measuring jig, and with the jig being rotated, the run-out at the periphery of the drum or its inner wall shall be measured with a dial gauge.

For a disc brake, the disc shall be fixed on the hub, and with the hub being rotated, the lateral run-out at the position 5 mm inside from the periphery of the disc shall be measured with a dial gauge.

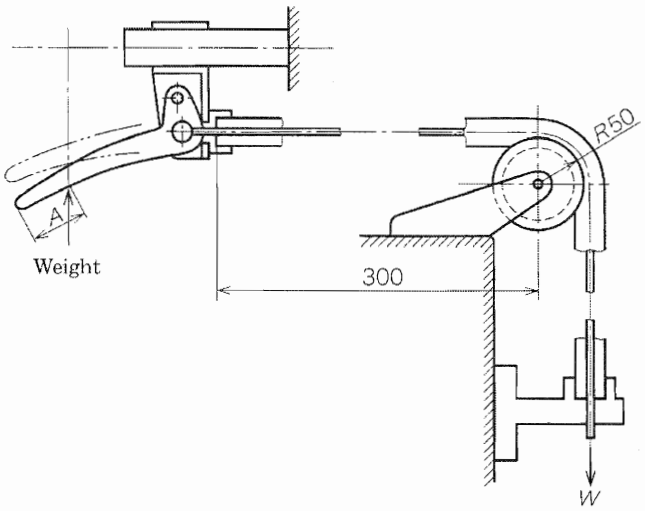
9.3 Strength test of brake cable

The brake cable shall be assembled with a brake lever, then attached to a testing device having a cylinder of 50 mm radius as shown in figure 2. A mass of 15 kg shall be hung at the end of the inner cable, and after the brake lever is pulled 10 000 times

(100 000 times for MTB-look use) at a stroke of 25 mm at the rate of 60 pulls per minute, the nipple and the inner cable shall be visually examined.

The engaging part between the brake lever and the nipple, and the inner cable shall be coated with lubricant prior to testing.

Unit: mm



Division	A
For bicycles for general use	25
For bicycles for young children	20

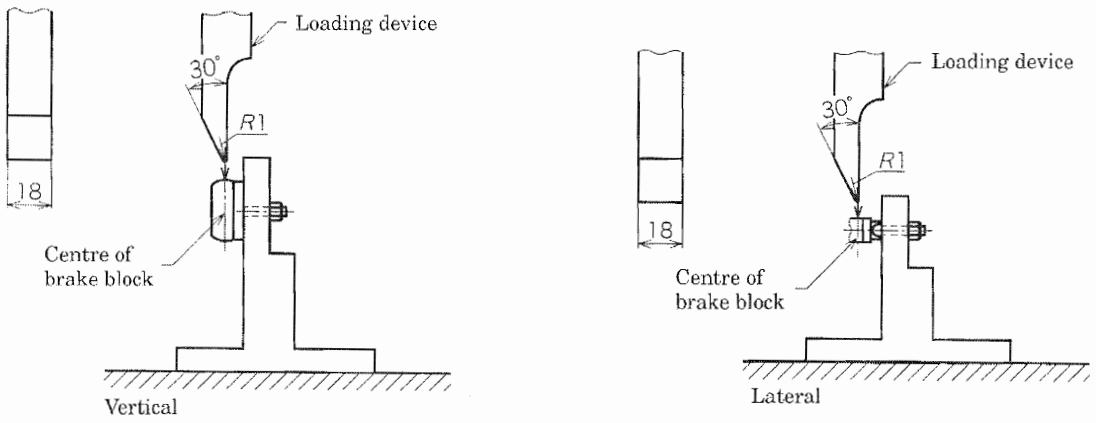
W: Weight of 15 kg

Figure 2 Repeating load test of brake cable

9.4 Retention strength test of brake block and block holder

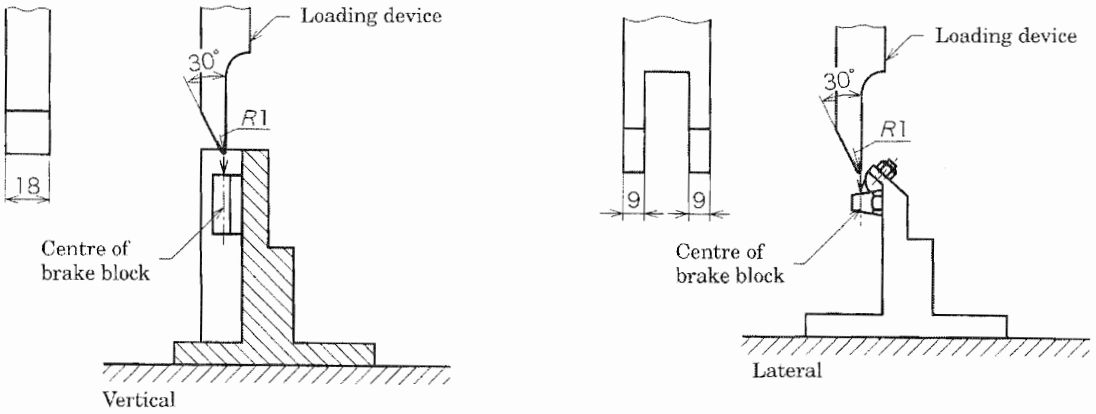
The block holder of caliper brake and pull-up rim brake shall be fixed, and after a force of 300 N in vertical direction and a force of 150 N in lateral direction are applied to the centre of brake block gently with a loading device as shown in figure 3, the brake block and block holder shall be visually examined.

Unit: mm



a) Caliper brake

Unit: mm



b) Pull-up rim brake

Figure 3 Retention strength test of brake block

9.5 Repeating load test for brake

The brake shall be mounted on a fixture so that both brake block attachment parts are approximately in parallel with each other as shown in figure 4. After 10 000 cycles of repeating force of 200 N is applied at the rate of 30 cycles per minute simultaneously to each centre of the block attachment parts, the brake block, mounting bolt, etc. shall be examined visually and tactually.

Unit: mm

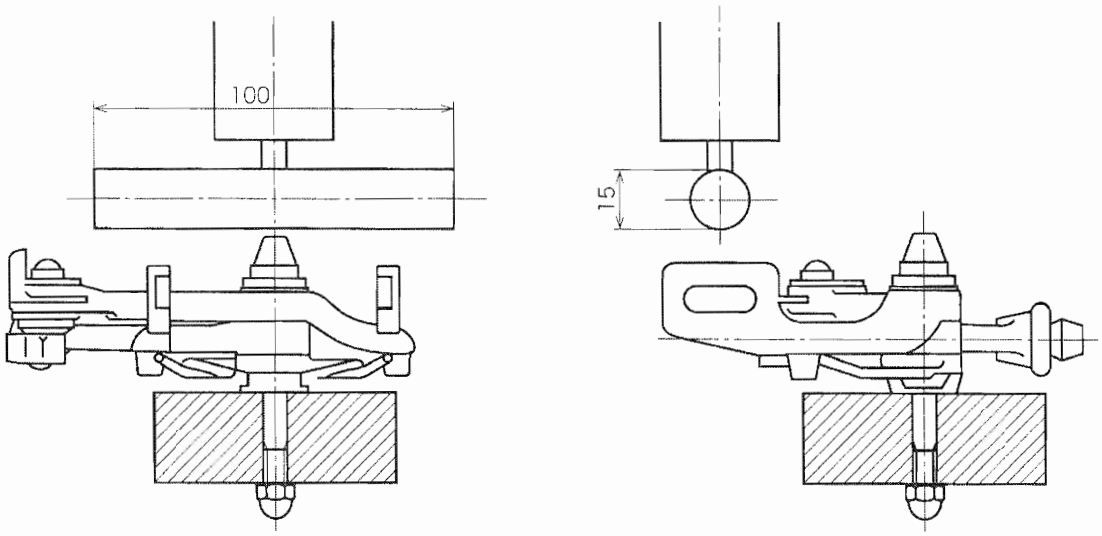


Figure 4 Repeating load test of brake

10 Plating and painting

10.1 Plating

The thickness and corrosion resistance of plating on the plated portion of the brake shall be equivalent to or better than Grade 2 in **JIS H 8617** or Grade 2 in **JIS H 8610**.

The thickness of the chrome plating shall be 0.05 μm or more regardless of the specification in **JIS H 8617**. This does not, however, apply to the plating on corners, threaded potions, hexagonal rod spanner hole or portions given any processing after plating.

10.2 Painting

The painted surface shall be, when subjected to the pencil scratch test specified in **JIS D 0202** using a lead type F, free from any breakage of paint film.

11 Appearance

The appearance of brake assemblies shall be as follows.

a) There shall be no visible flaws, exposure or incomplete polishing of substrate, peeling, rust or other visible defects on any plated surfaces.

The surface to be exposed after assembling shall be free from unevenness of plating.

b) There shall be no rust, cracks, visible flaws, or other visible defects on any non-plated surface.

c) There shall be no sharp tips, visible fins, burrs, and the like on any surface.

d) Marks shall be free from incomplete stamping, positional deviation, irregular colour, blur and other visible defects.

12 Designation of products

Brake assemblies shall be designated by the Standard number, constitution of the assembly, and its combination of each component classification.

Example 1 Where the brake assembly is constituted of brake, brake lever and operation-force transmission.

JIS D 9414, band brake, touring brake lever, cable system

Example 2 Where brake assembly is constituted without brake lever,

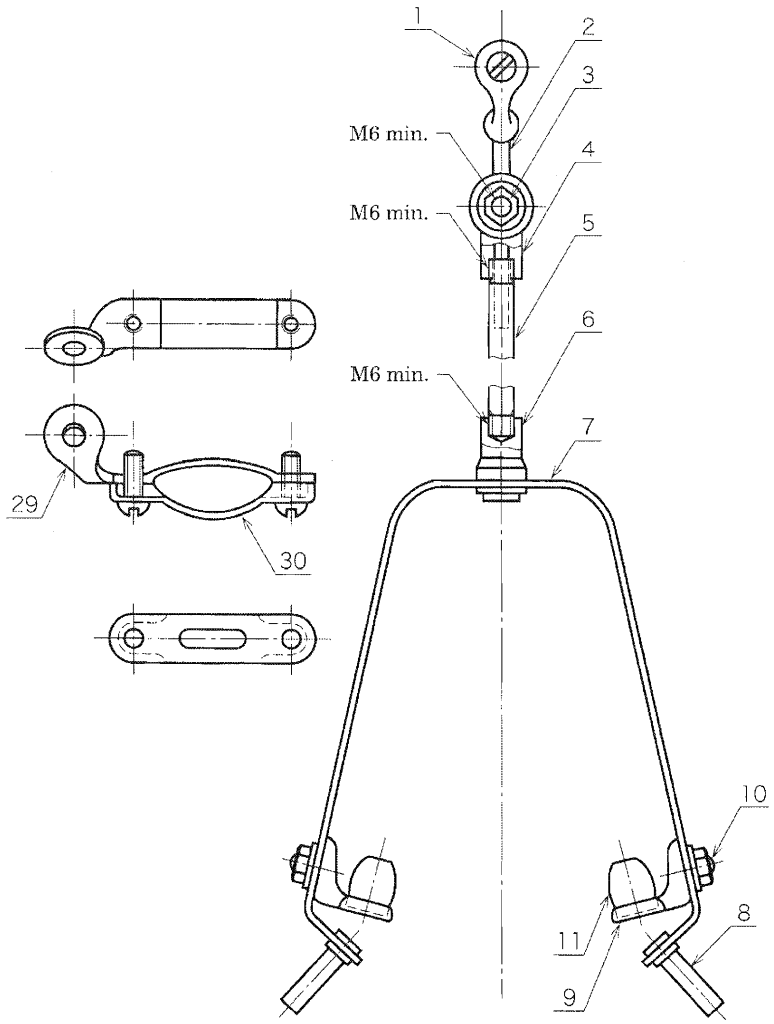
JIS D 9414, pull-up brake, rod system

13 Marking

Brake assemblies shall be marked with manufacturer's name or its abbreviation on brake surface by stamping or embossing.

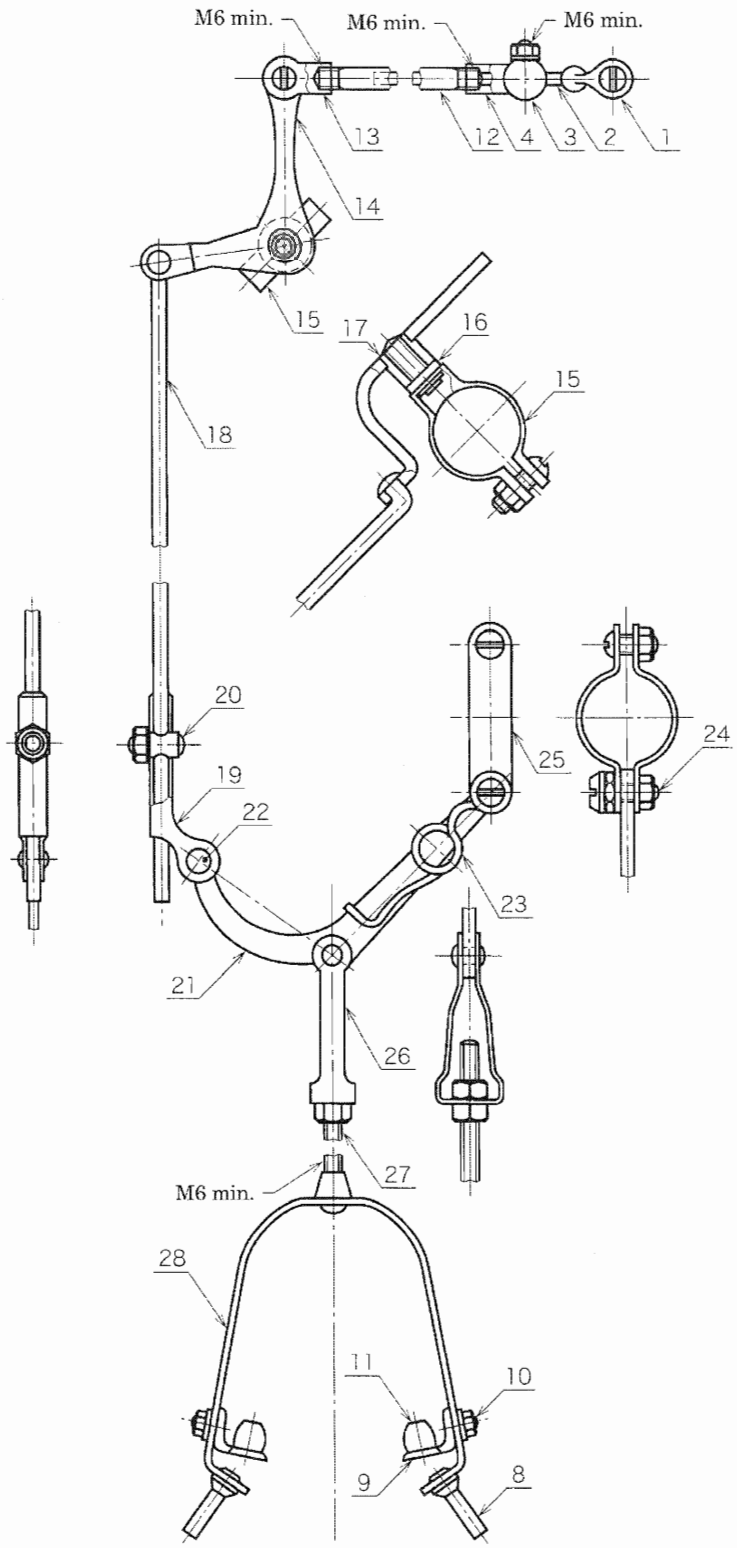
14 Instruction manual

An instruction manual shall be appended when required by the agreement between the parties concerned with delivery.



a) Front pull-up rim brake

Figure 5 Pull-up rim brake

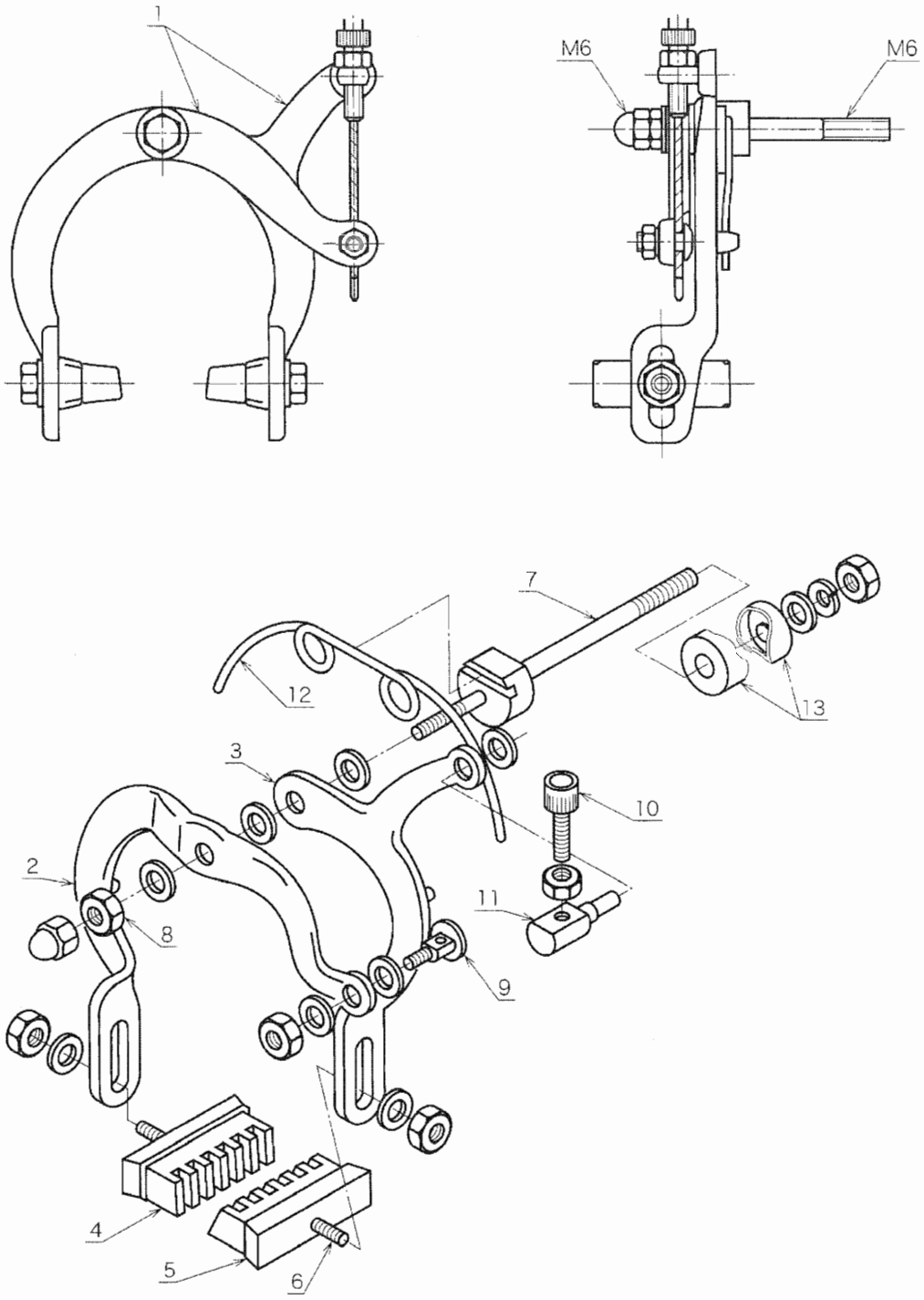


b) Rear pull-up brake

Figure 5 (continued)

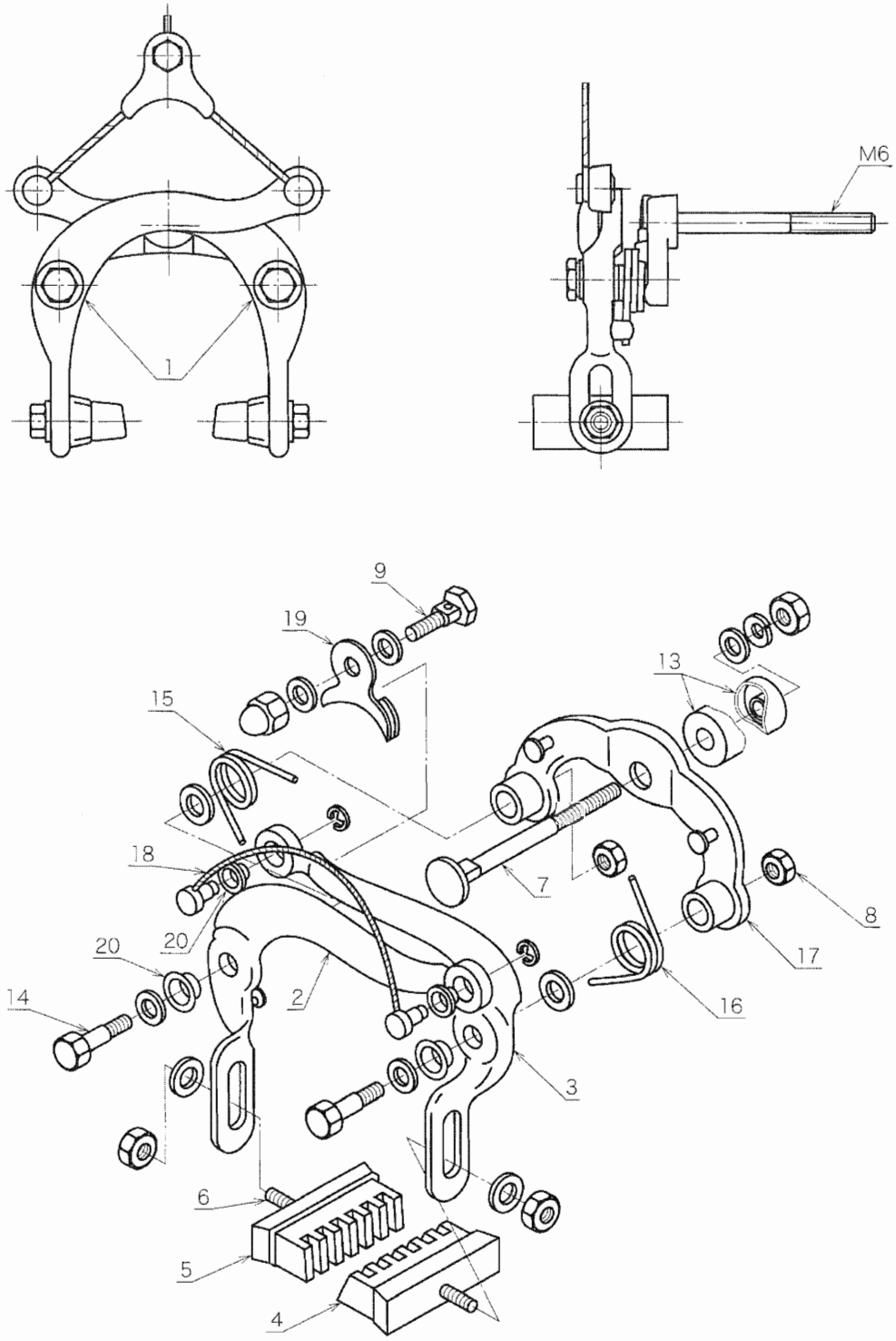
No.	Name of part	Material (informative)
1	Top swivel joint	SPCC of **JIS G 3141**, SUS304 of **JIS G 4305**
2	Plunger rod	SWRM10 of **JIS G 3505**, SUS304 of **JIS G 4309**
3	Tightening bolt	SWRM10 of **JIS G 3505**
4	Top joint	SWRM10 of **JIS G 3505**, C3604 of **JIS H 3250**
5	Front brake tube	STKM12A of **JIS G 3445**, SUS304 of **JIS G 3446**
6	Bottom end lug	STKM12A of **JIS G 3445**, C3604 of **JIS H 3250**
7	Front stirrup	SPCC of **JIS G 3141**, SUS304 of **JIS G 4305**
8	Guide peg	SWRM10 of **JIS G 3505**, SUS304 of **JIS G 4305**
9	Brake block holder	SPCC of **JIS G 3141**, A5052P-H34 of **JIS H 4000**
10	Block holder bolt	SWRM10 of **JIS G 3505**
11	Brake block	Synthetic rubber
12	Rear brake tube	STKM12A of **JIS G 3445**, SUS304 of **JIS G 3446**
13	Bottom swivel joint	SWRM10 of **JIS G 3505**, C3604 of **JIS H 3250**
14	Top bell crank	SPHC of **JIS G 3131**, SUS304 of **JIS G 4305**
15	Top bell-crank clip	SPCC of **JIS G 3141**
16	Top bell-crank clip bolt	SWRM10 of **JIS G 3505**, A1100BD of **JIS H 4040**
17	Bell-crank pivot	SWRM10 of **JIS G 3505**
18	Bottom rod	SWRM10 of **JIS G 3505**, SUS304 of **JIS G 4309**
19	Rod coupling	SPCC of **JIS G 3141**
20	Rod coupling bolt	SWRM10 of **JIS G 3505**
21	Bottom bell crank	SPCC of **JIS G 3141**, SPHC of **JIS G 3131**
22	Bottom bell crank rivet	SWRM10 of **JIS G 3505**, A1100BD of **JIS H 4040**
23	Spring	SWRH77A of **JIS G 3506**
24	Spring clip bolt	SWRM10 of **JIS G 3505**
25	Bottom lug clip	SPCC of **JIS G 3141**
26	Brake adjusting fork	SPHC of **JIS G 3131**
27	Brake adjusting screw	SWRM10 of **JIS G 3505**
28	Rear stirrup	SPCC of **JIS G 3141**, SUS304 of **JIS G 4305**
29	Stirrup clip	SPHC of **JIS G 3131**, SUS304 of **JIS G 4305**
30	Stirrup clip bolt	SPCC of **JIS G 3141**, SUS304 of **JIS G 4305**

Figure 5 (concluded)



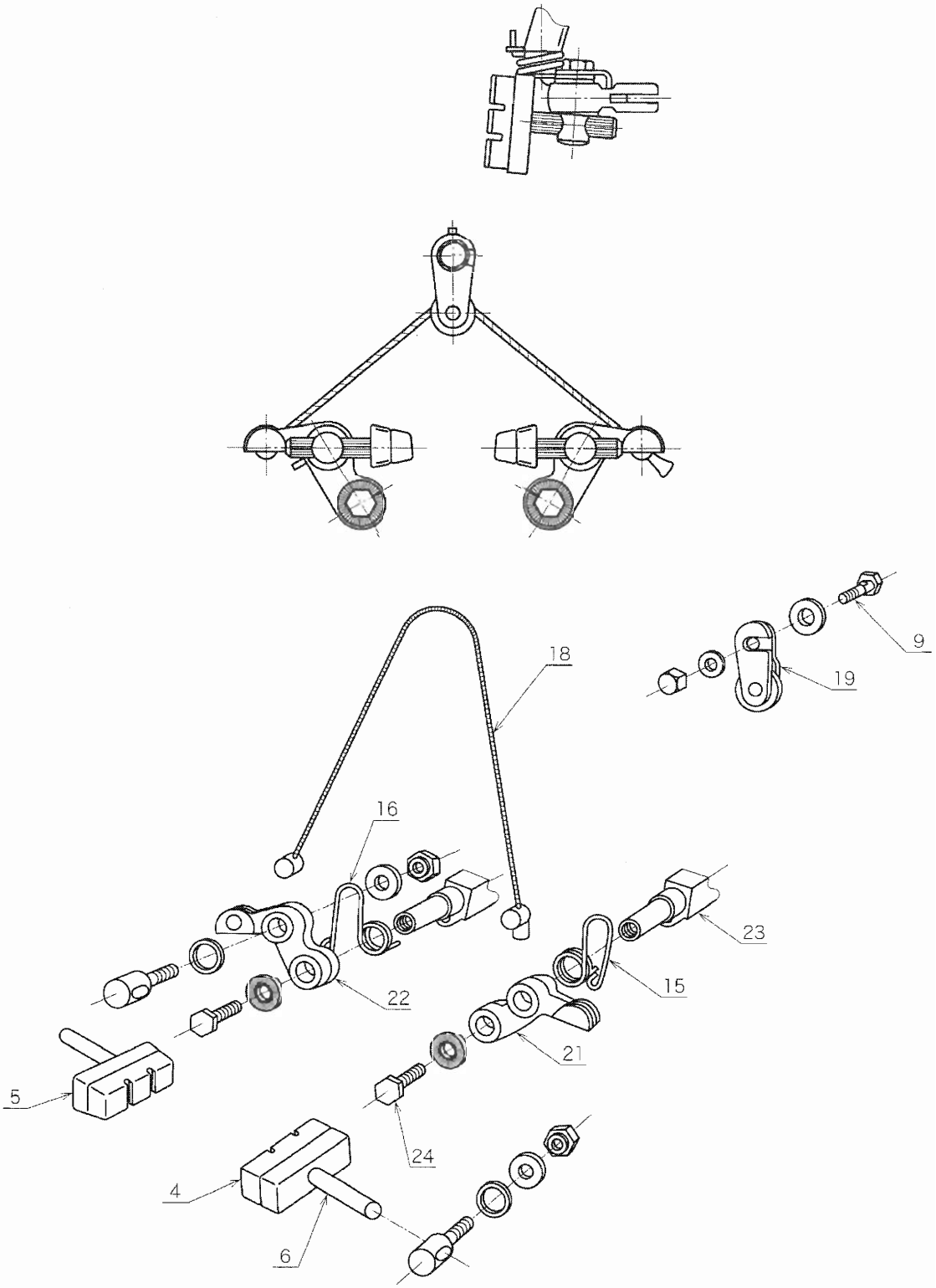
a) Side-pull caliper brake

Figure 6 Caliper brake



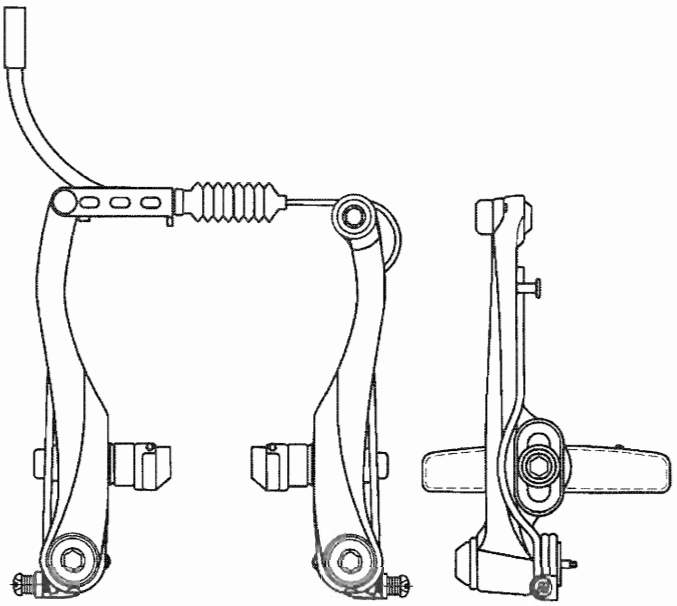
b) Centre-pull caliper brake

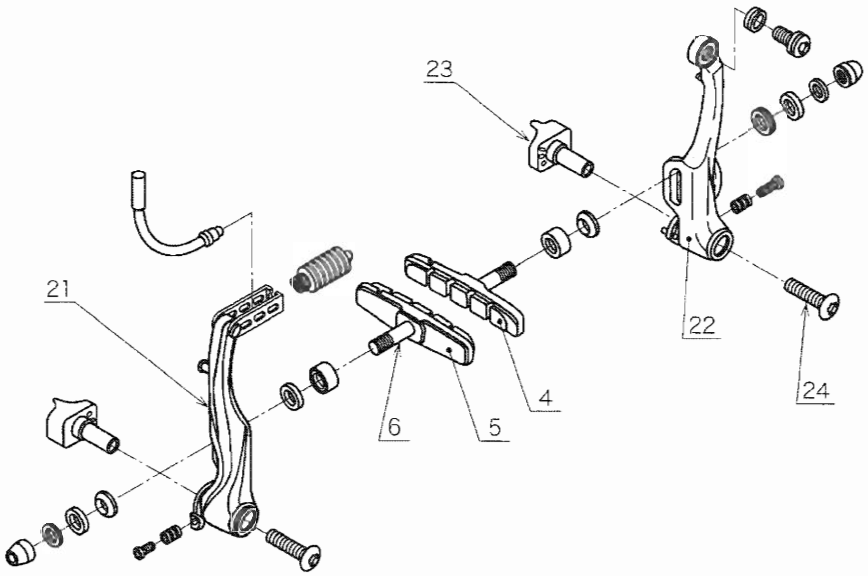
Figure 6 (continued)



c) Cantilever caliper brake

Figure 6 (continued)



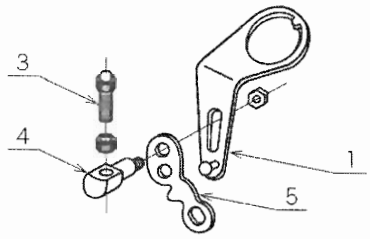


d) Cantilever caliper brake type V

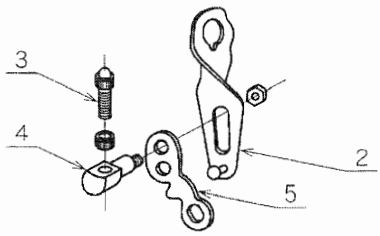
Figure 6 (continued)

No.	Name of part	Material (informative)
1	Brake arm	SPHC of **JIS G 3131**, A6151FD of **JIS H 4140**
2	Outer brake arm	A6151FD of **JIS H 4140**
3	Inner brake arm	A6151FD of **JIS H 4140**
4	Brake block	Synthetic rubber
5	Brake block holder	SPCC of **JIS G 3141**, A5052P of **JIS H 4000**
6	Block holder bolt	SWRM10 of **JIS G 3505**, SWRM20 of **JIS G 3505**
7	Centre mounting bolt	SWRCH of **JIS G 3507-1**, S45C of **JIS G 4051**, SCM435 of **JIS G 4053**
8	Retaining nut	SWRM10 of **JIS G 3505**, A2017S of **JIS H 4100**
9	Cable pinch bolt	SWRM10 of **JIS G 3505**, S45C of **JIS G 4051**, SS400 of **JIS G 3101**
10	Cable adjusting screw	A5052W of **JIS H 4040**, A5056FD of **JIS H 4140**
11	Cable pivot stud	A2011BD of **JIS H 4040**, SWRM10 of **JIS G 3505**
12	Returning spring	SWRH77A of **JIS G 3506**, SW-C of **JIS G 3521**
13	Radius spacer	SPHC of **JIS G 3131**, SPCC of **JIS G 3141**
14	Pivot bolt	SS400 of **JIS G 3101**, S35C of **JIS G 4051**
15	Right hand return spring	SWRH77A of **JIS G 3506**, SWP-B of **JIS G 3522**
16	Left hand return spring	SWRH77A of **JIS G 3506**, SWP-B of **JIS G 3522**
17	Brake arm bridge	SPHC of **JIS G 3131**, 6151 of **JIS H 4140**
18	Straddle cable	SWRH62A of **JIS G 3506**
19	Cable carrier	A6061P of **JIS H 4000**
20	Bush	Poly acetal
21	Left brake arm	A6151FD of **JIS H 4140**
22	Right brake arm	A6151FD of **JIS H 4140**
23	Cantilever brake base	SPCC of **JIS G 3141**, SUM23 of **JIS G 4804**
24	Attaching screw	S45C of **JIS G 4051**

Figure 6 (continued)



1) Front cable hanger assembly



2) Rear cable hanger assembly

e) Cable hangers

No.	Name of part	Material (informative)
1	Front cable hanger	SPHC of **JIS G 3131**
2	Rear cable hanger	SPCC of **JIS G 3141**
3	Cable adjusting screw	A5052W of **JIS H 4040**
4	Cable pivot stud	A2011BD of **JIS H 4040**
5	Quick release cam	SPCC of **JIS G 3141**

Figure 6 (concluded)

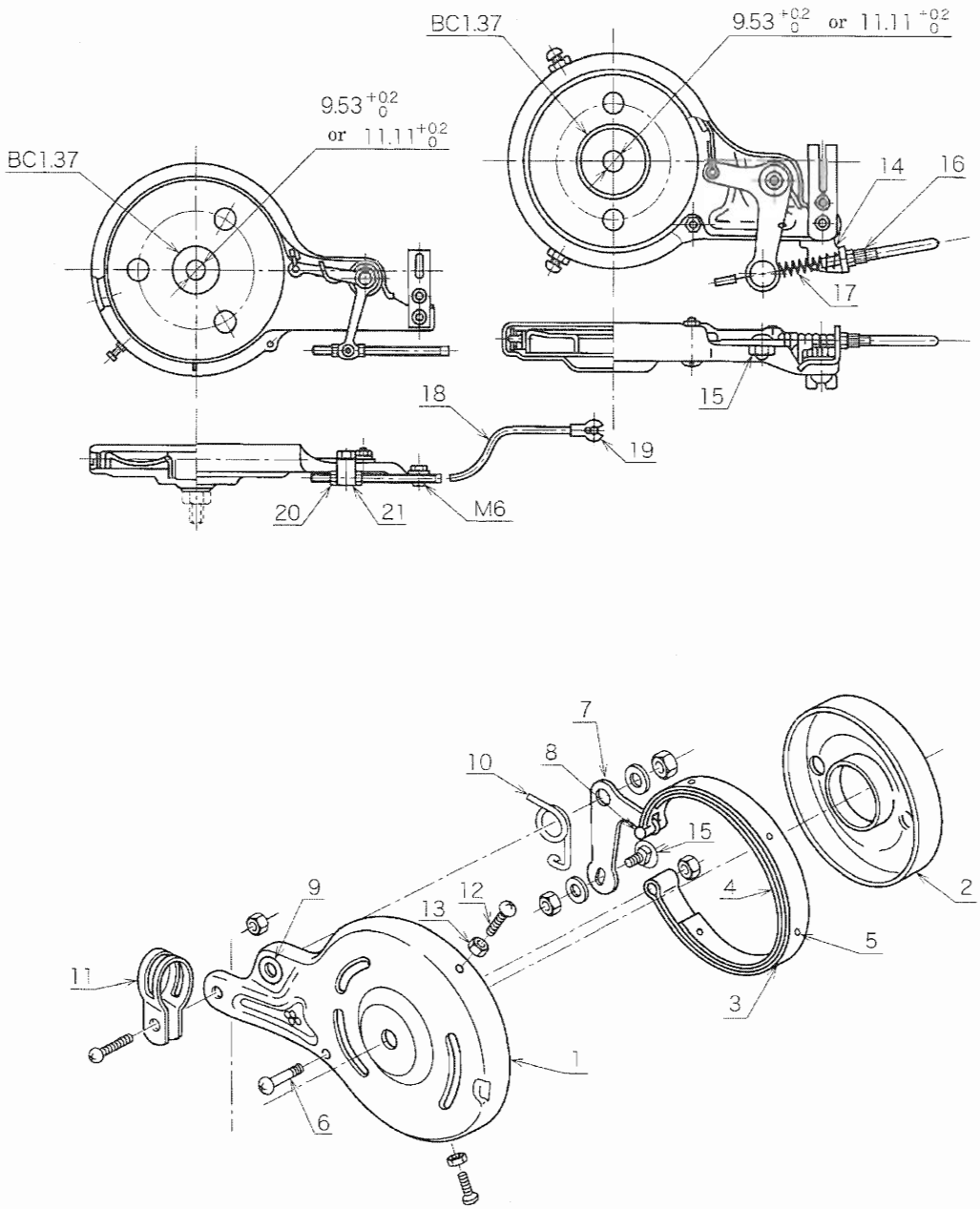


Figure 7 Band brake

No.	Name of part	Material (informative)
1	Band brake cover	SPCC of **JIS G 3141**
2	Brake drum	SPCC of **JIS G 3141**, SPHC of **JIS G 3131**
3	Brake shoe	SPCC of **JIS G 3141**
4	Brake lining	Synthetic rubber
5	Lining rivet	A5052W of **JIS H 4040**
6	Brake shoe pivot bolt	SWCH of **JIS G 3507-2**, SWRM8 of **JIS G 3505**
7	Brake bell-crank	SPHC of **JIS G 3131**, SPCC of **JIS G 3141**
8	Bell-crank rivet	SWCH of **JIS G 3507-2**, SWRM10 of **JIS G 3505**
9	Bell-crank screw	SWCH of **JIS G 3507-2**, SWRM10 of **JIS G 3505**
10	Bell-crank returning spring	SWRH of **JIS G 3506**, SW-B of **JIS G 3521**
11	Fork clip	SPCC of **JIS G 3141**, SUS430 of **JIS G 4305**
12	Lining-adjusting screw	SWCH of **JIS G 3507-2**, SWRM10 of **JIS G 3505**
13	Lining-adjusting nut	SWCH of **JIS G 3507-2**, SWRM8 of **JIS G 3505**
14	Cable stopper	SPHC of **JIS G 3131**, SPCC of **JIS G 3141**
15	Cable anchor bolt	SWCH of **JIS G 3507-2**, S15C of **JIS G 4051**
16	Cable adjusting screw	SWCH of **JIS G 3507-2**, SWRM10 of **JIS G 3505**
17	Cable returning spring	SWRH of **JIS G 3506**, SW-B of **JIS G 3521**
18	Control rod	SWRM of **JIS G 3505**, SS330 of **JIS G 3101**
19	Bottom swivel joint	SS330 of **JIS G 3101**, SWRM12 of **JIS G 3505**
20	Control rod adjusting nut	SWCH of **JIS G 3507-2**, SWRM8 of **JIS G 3505**
21	Brake fitting bolt	SWCH of **JIS G 3507-2**, SWRM10 of **JIS G 3505**

Figure 7 (concluded)

Unit: mm

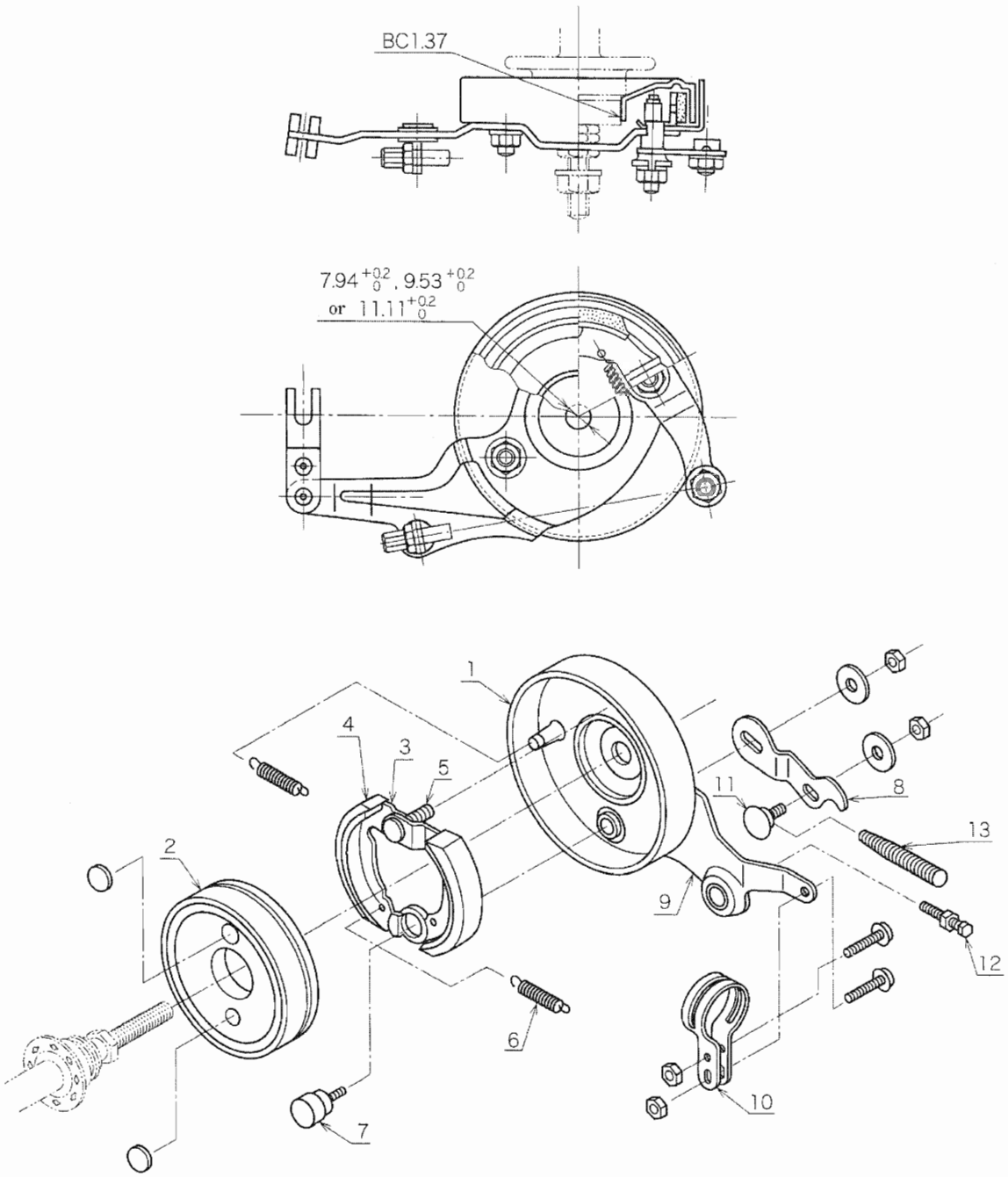
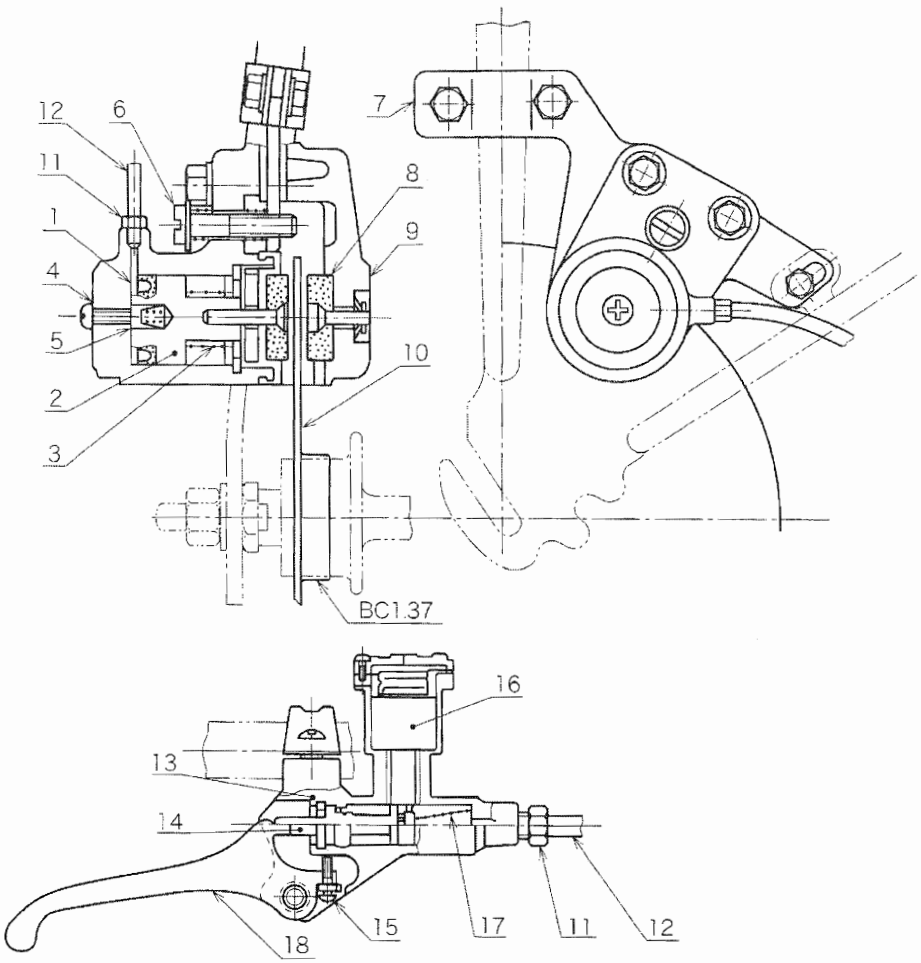


Figure 8 Internal expanding brake

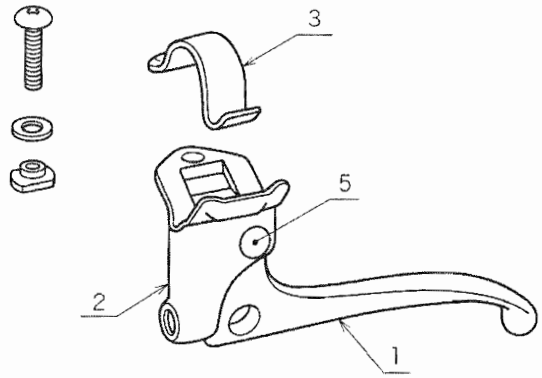
No.	Name of part	Material (informative)
1	Expanding brake cover	SPHC of **JIS G 3131**, SPCC of **JIS G 3141**
2	Brake drum	SPHC of **JIS G 3131**, SPCC of **JIS G 3141**
3	Brake shoe	SPHC of **JIS G 3131**, SPCC of **JIS G 3141**
4	Brake lining	Synthetic rubber
5	Brake shoe fastening screw	SWRM10 of **JIS G 3505**
6	Shoe returning spring	SW-B of **JIS G 3521**
7	Cam	SUM22 of **JIS G 4804**
8	Bell-crank	SPHC of **JIS G 3131**, SPCC of **JIS G 3141**
9	Brake arm	SPCC of **JIS G 3141**
10	Fork clip	SPCC of **JIS G 3141**, SUS430 of **JIS G 4305**
11	Cable pinch bolt	S15C of **JIS G 4051**, SWCH of **JIS G 3507-2**
12	Cable adjusting bolt	SWRM10 of **JIS G 3505**
13	Cable returning spring	SW-B of **JIS G 3521**

Figure 8 (concluded)

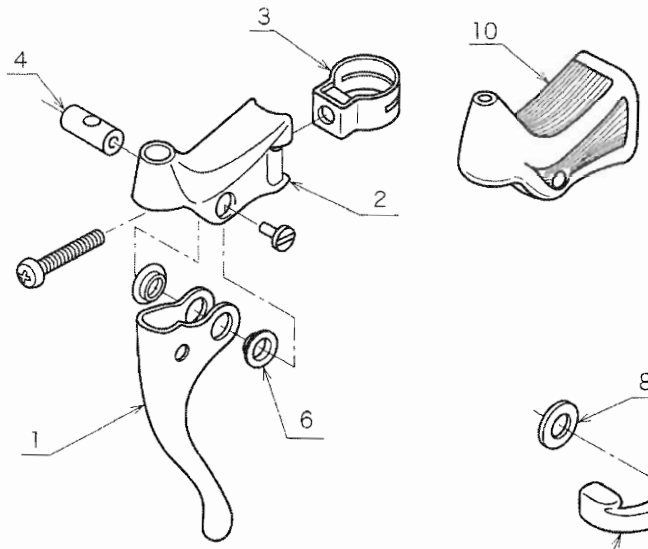


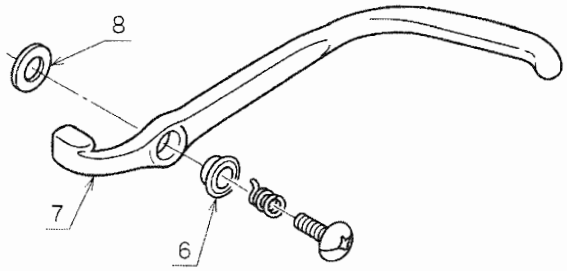
No.	Name of part		Material (informative)	No.	Name of part		Material (informative)
1	Wheel oil power unit	Wheel cylinder	ADC6 of **JIS H 5302**	10	Brake disc		SUS430 of **JIS G 4303**
2		Wheel piston	A2017S of **JIS H 4100**	11	Hose joint		SS400 of **JIS G 3101**
3		Returning spring	SUS304 of **JIS G 4303**	12	Brake hose		Synthetic resin
4		Cup	ADC6 of **JIS H 5302**	13	Master power unit	Master cylinder	ADC6 of **JIS H 5302**
5		Check valve	Synthetic rubber	14		Main piston	A2017S of **JIS H 4100**
6		Set adjusting bolt	S35C of **JIS G 4051**	15		Lever adjusting bolt	SWCH12A of **JIS G 3507-2**
7		Bracket	SPHC of **JIS G 3131**	16		Oil reservoir	Synthetic resin
8	Brake pad		Synthetic rubber	17		Returning spring	SUS304 of **JIS G 4303**
9	Pad holder		ADC6 of **JIS H 5302**	18	Brake lever		A6151FD of **JIS H 4140**

Figure 9 Disc brake

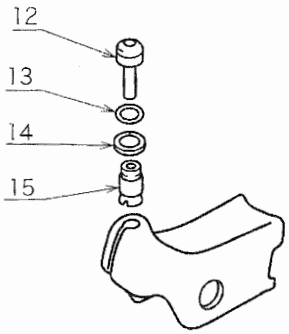


a) Touring brake lever



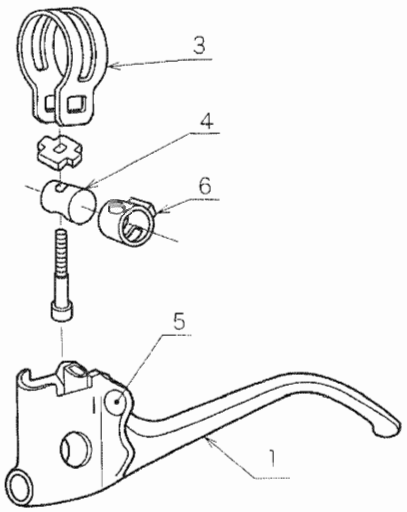


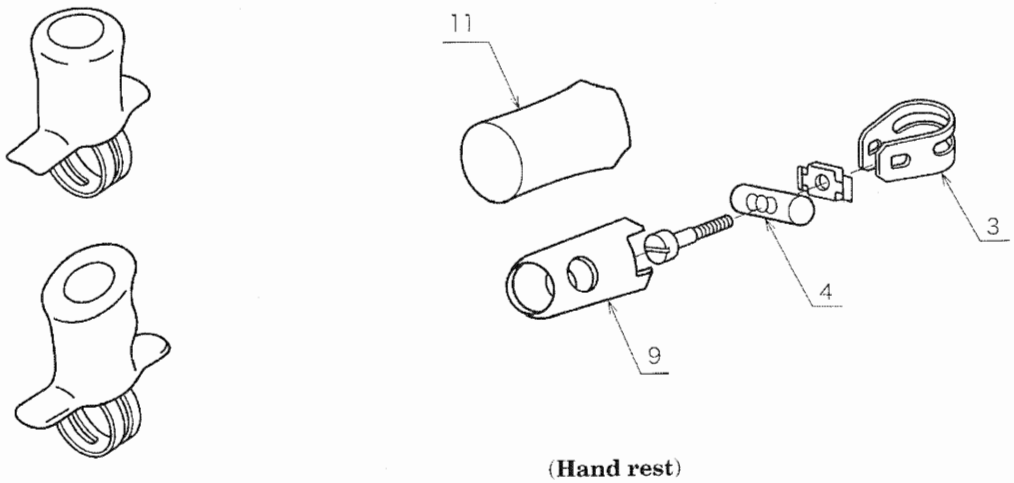
(**Extension brake lever**)



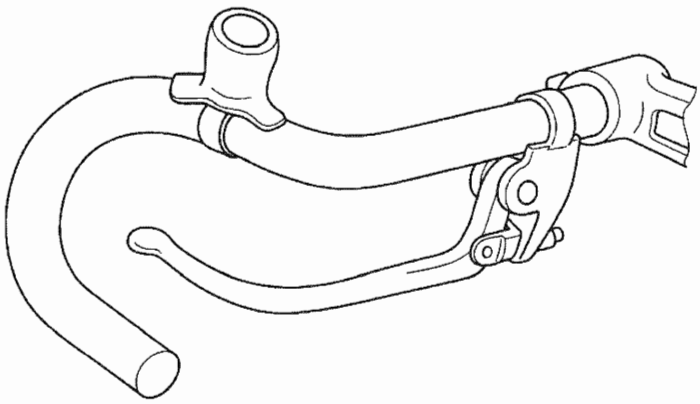
b) Drop handlebar brake lever

Figure 10 Brake levers



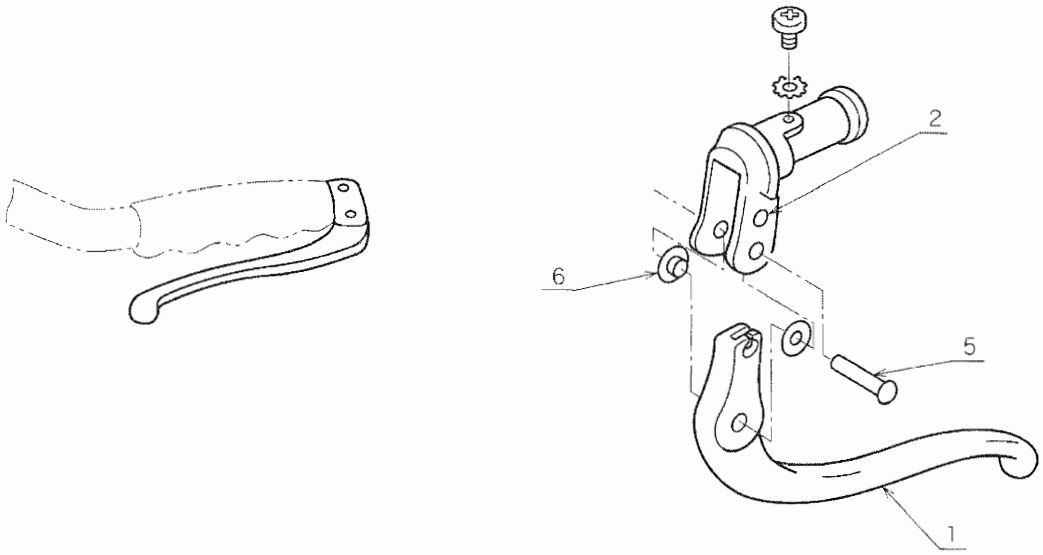


(**Hand rest**)



c) Guidonnet brake lever

Figure 10 (continued)

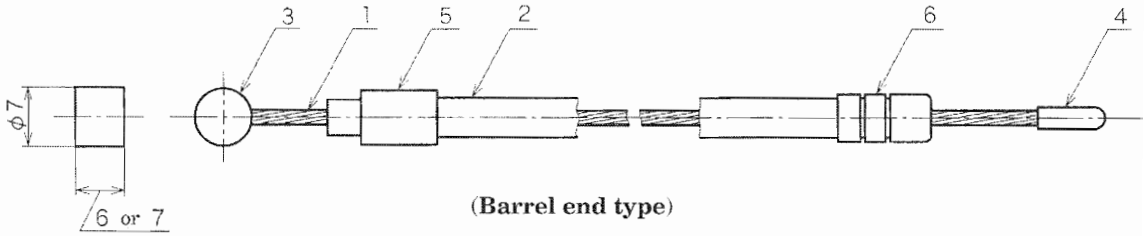


d) Inverted brake lever

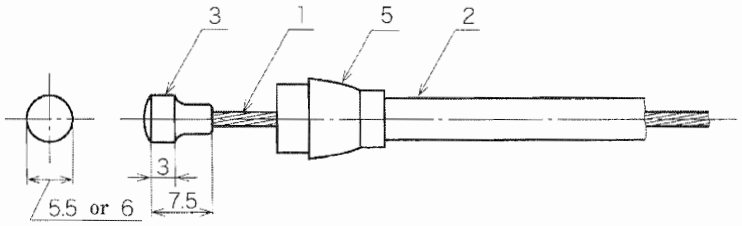
No.	Name of part	Material (informative)
1	(Right and left) brake lever	SPCC of **JIS G 3141**, A6151FD of **JIS H 4140**, A5052P of **JIS H 4000**
2	Bracket	Polyethylene of **JIS K 6922-1**, ADC5 of **JIS H 5302**
3	Clamp	SPCC of **JIS G 3141**, A6061P of **JIS H 4000**
4	Clip expanding pivot bolt	SWRM10 of **JIS G 3505**
5	Pivot pin	SWRM10 of **JIS G 3505**
6	Bush	Polyethylene of **JIS K 6922-1**
7	(Right and left) extension brake lever	SPHC of **JIS G 3131**
8	Washer	SPCC of **JIS G 3141**
9	Hand rest body	A6061P of **JIS H 4000**
10	Lever hood cover	Synthetic resin
11	Hand rest cover	Synthetic resin
12	Lever type cable adjusting bolt	C3602BD of **JIS H 3250**
13	Fixing ring	O-ring of **JIS B 2401**
14	Cable adjusting nut	A2011BD of **JIS H 4040**
15	Cable guide	SUM23 of **JIS G 4804**

Figure 10 (concluded)

Unit: mm



(Barrel end type)



(Pear end type)

No.	Name of part	Material (informative)
1	Inner cable	SWRH62A of **JIS G 3506**
2	Outer cable casing	SWRH62A of **JIS G 3506**, vinyl chloride resin of **JIS K 6720-1** or **JIS K 6720-2**
3	Cable end nipple	ZDC1 or ZDC2 of **JIS H 5301**
4	Cable cap	A1100S of **JIS H 4100**, polyethylene of **JIS K 6922-1**
5	Cable end ferrule	C3604 of **JIS H 3250**, A2011BD of **JIS H 4040**
6	Casing end cap	C3604 of **JIS H 3250**, C2680 of **JIS H 3100**

Figure 11 Brake cable

Annex A (informative)
Bibliography

Introduction

This Annex describes the bibliography and does not constitute a part of the provisions.

JIS B 2401 *O-rings*

JIS G 3101 *Rolled steels for general structure*

JIS G 3131 *Hot-rolled mild steel plates, sheets and strips*

JIS G 3141 *Cold-reduced carbon steel sheets and strips*

JIS G 3445 *Carbon steel tubes for machine structural purposes*

JIS G 3446 *Stainless steel pipes for machine and structural purposes*

JIS G 3505 *Low carbon steel wire rods*

JIS G 3506 *High carbon steel wire rods*

JIS G 3507-1 *Carbon steels for cold heading—Part 1: Wire rods*

JIS G 3507-2 *Carbon steels for cold heading—Part 2: Wires*

JIS G 3521 *Hard drawn steel wires*

JIS G 3522 *Piano wires*

JIS G 4051 *Carbon steels for machine structural use*

JIS G 4053 *Low-alloyed steels for machine structural use*

JIS G 4303 *Stainless steel bars*

JIS G 4305 *Cold-rolled stainless steel plate, sheet and strip*

JIS G 4309 *Stainless steel wires*

JIS G 4804 *Free-cutting steels*

JIS H 3100 *Copper and copper alloy sheets, plates and strips*

JIS H 3250 *Copper and copper alloy rods and bars*

JIS H 4000 *Aluminium and aluminium alloy sheets, strips and plates*

JIS H 4040 *Aluminium and aluminium alloy rods, bars and wires*

JIS H 4100 *Aluminium and aluminium alloy extruded shape*

JIS H 4140 *Aluminium and aluminium alloy forgings*

JIS H 5301 *Zinc alloys die castings*

JIS H 5302 *Aluminium alloy die castings*

JIS K 6720-1 *Plastics—Homopolymer and copolymer resins of vinyl chloride (PVC)—Part 1: Designation system and basis for specifications*

JIS K 6720-2 *Plastics—Homopolymer and copolymer resins of vinyl chloride—Part 2: Preparation of test samples and determination of properties*

JIS K 6922-1 *Plastics—Polyethylene (PE) moulding and extrusion materials—Part 1: Designation system and basis for specifications*

Errata for JIS (English edition) are printed in *Standardization Journal*, published monthly by the Japanese Standards Association, and also provided to subscribers of JIS (English edition) in *Monthly Information*.

Errata will be provided upon request, please contact:

Standards Publishing Department, Japanese Standards Association
4-1-24, Akasaka, Minato-ku, Tokyo, 107-8440 JAPAN
TEL. 03-3583-8002 FAX. 03-3583-0462